

Amended Claims

1. A method of supplying a plasma torch with a gas, mixed gas or gas mixture, in which the volume flow of the gas, mixed gas or gas mixture is controlled,

characterised

in that the volume flow control is effected in combination with a pressure control of the gas, mixed gas or gas mixture in such a way that the pressure control is used to adjust the level of the total volume flow through the nozzle of the plasma torch, and the volume flow control is used to adjust the volume flow portions producing the total volume flow, taking the desired gas composition into account.

2. The method as claimed in claim 1, characterised in that the pressure in the interior of the plasma torch between the electrode and the nozzle of the plasma torch is measured directly or indirectly.
3. The method as claimed in claim 2, characterised in that the pressure in the gas delivery means is measured upstream of the plasma torch.
4. The method as claimed in claim 2, characterised in that the volume flow control is effected by means of one or more volume flow control means, and the pressure is measured between the one or more volume flow control means and the plasma torch.
5. The method as claimed in claim 4, characterised in that the pressures of the individual gases or individual mixed gases are measured and a mean pressure is formed from the pressures measured.

6. The method as claimed in claim 4, characterised in that the individual gases or individual mixed gases are combined and the resulting pressure is measured.
7. The method as claimed in claim 4, characterised in that at least two individual gases or mixed gases are combined and the resulting pressure is measured.
8. The method as claimed in claim 1, characterised in that the volume flow of a gas mixture is controlled by controlling the volume flows of the individual gases or individual mixed gases of the gas mixture.
9. The method as claimed in claim 1, characterised in that at least one volume flow is controlled on the basis of the calorimetric measurement of the volume flow, on the basis of the measurement of the volume flow from the differential pressure or on the basis of a pulse measurement.
10. The method as claimed in claim 1, characterised in that the plasma torch is additionally supplied with secondary gas or secondary mixed gas or a secondary gas mixture and the volume flow of the secondary gas or secondary mixed gas or secondary gas mixture is controlled.
11. The method as claimed in claim 10, characterised in that the volume flow control of the secondary gas, secondary mixed gas or secondary gas mixture is effected in combination with a pressure control of the secondary gas, secondary mixed gas or secondary gas mixture in such a way that the pressure control is used to adjust the level of the total volume flow of the secondary gas, secondary mixed gas or secondary gas mixture through the secondary gas nozzle of the plasma torch, and the volume flow control is used to adjust the volume flow portions producing the total volume flow, taking the desired secondary gas composition into account.

12. The method as claimed in claim 1, characterised in that the plasma torch, before being supplied with the gas, mixed gas or gas mixture, is supplied separately with a pre-flow gas at a controlled pressure, and/or after being supplied with the gas, mixed gas or gas mixture, it is supplied separately with a post-flow gas at a controlled pressure post-flow gas.

13. The method as claimed in claim 1, characterised in that the gas, mixed gas or gas mixture is a plasma gas, plasma mixed gas or plasma gas mixture.

14. An arrangement (10) for supplying a plasma torch with a gas or mixed gas or gas mixture with a means (18) for delivering the gas or mixed gas or gas mixture to the plasma torch and a volume flow control means for controlling the volume flow of the gas or mixed gas or gas mixture,

characterised

in that the volume flow control means is combined with a pressure control means to control the pressure of the gas, mixed gas or gas mixture in such a way that the pressure control means is used to adjust the level of the total volume flow through the nozzle (14) of the plasma torch, and the volume flow control means is used to adjust the volume flow portions producing the total volume flow, taking the desired gas composition into account.

15. The arrangement (10) as claimed in claim 14, characterised in that a pressure measuring means is provided for directly or indirectly measuring the pressure in the interior of the plasma torch between the electrode (12) and the nozzle (14) of the plasma torch.

16. The arrangement (10) as claimed in claim 15, characterised in that the pressure measuring means comprises a pressure measuring means (4a, 4b, 4c) for each individual gas or mixed gas.

17. The arrangement (10) as claimed in claim 15, characterised in that the pressure measuring means comprises a single pressure measuring means (4a) for measuring the pressure of the combined individual gases or mixed gases.
18. The arrangement (10) as claimed in claim 15, characterised in that the pressure measuring means comprises at least one pressure measuring means (4a) for measuring the pressure of at least two combined individual gases or mixed gases.
19. The arrangement (10) as claimed in claim 14, characterised in that the volume flow control means for controlling the volume flow of a gas mixture comprises a volume flow control means (1a, 1b, 1c) for each individual gas or mixed gas of the gas mixture.
20. The arrangement (10) of claim 14, characterised in that, in addition, a means (20) is provided for delivering a secondary gas, secondary mixed gas or secondary gas mixture to the plasma torch and a secondary gas volume flow control means is provided for controlling the volume flow of the secondary gas or secondary mixed gas or secondary gas mixture.
21. The arrangement (10) of claim 20, characterised in that the secondary gas volume flow control means is combined with a secondary gas pressure control means for controlling the pressure of the secondary gas, secondary mixed gas or secondary gas mixture in such a way that the pressure control means is used to adjust the level of the total volume flow through the secondary gas nozzle (16) of the plasma torch, and the volume flow control means is used to adjust the volume flow portions producing the total volume flow, taking the desired secondary gas composition into account.

22. The arrangement as claimed in claim 14, characterised in that, in addition, pre-flow gas delivery means are provided for separately delivering a pre-flow gas to the plasma torch and a pressure control means (17) is provided for controlling the pressure of the pre-flow gas, and/or a post-flow means is provided for separately delivering a post-flow gas to the plasma torch and a pressure control means (17) is provided for controlling the pressure of the post-flow gas.
23. The arrangement (10) as claimed in claim 14, characterised in that the gas is a plasma gas, the mixed gas is a plasma mixed gas and the gas mixture is a plasma gas mixture.